



KEY SKILLS

APPLICATION OF NUMBER

Level 3

Practice Test

Mark Scheme

Final Mark Scheme - Application of Number - March Series 2005 - 22nd March 2005
AoN-L3-3.2-P33

Units in brackets are optional

Question	Marks	For	Responses
Part A			
1a	1 mark	1	799.9702514(mg) Rounded or Un-Rounded or Truncated.
1b	1 mark	1	320.0029(mg) Rounded or Un-Rounded or Truncated.
1c	3 marks	3	Yes WITH correct supporting calculation e.g. $382 + 320 + 270 = 972$. Follow through from parts a and b which may lead to a 'No' answer.
		2	For 300(mg) and 82(mg) or 382(mg) of calcium in the milk shake seen or correct method with one calculation error.
		1	For $234.29 \times 35 \div 100$ seen.
2a	2 marks	2	2 570(mm) or 2 580(mm) Accept 2 574(mm) or 2 575(mm) or equivalent with units
		1	For correct substitution into tan or complete correct method with one calculation error
2b	2 marks	2	3 180(mm) Accept answer within range of 3 175(mm) to 3 190(mm) or equivalent with units. Possible follow through from part a
		1	For answers between 2 576.275678 and 2 580.405665 seen rounded or un-rounded for the length of the ramp or complete correct method with one calculation error
2c	1 mark	1	For correct check of their answer using an alternative method e.g. Pythagoras or trig
2d	1 mark	1	4 670(mm) or 4 680(mm). Accept 4 674(mm) or 4 675(mm). Possible follow through from part a.
3a	2 marks	2	Answer within the range 15 200(cm ³) to 15 227(cm ³) or equivalent in litres with units. Accept 15 000(cm ³) for the capacity of one pot.
		1	For correct substitution into the formula seen e.g. $V = 26\pi(17^2 + [17 \times 10] + 10^2) \div 3$
3b	2 marks	2	66.6 (litres) accept answers that round to 66 or 67 (litres). Follow through from part a
		1	For $7/8 \times 5 \times$ (their answer to part a)(cm ³) or complete correct method with one calculation error.
3c	1 mark	1	(£)6.07

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4a	1 mark	1	1/5 or 2/9
4b	2 marks	2	TWO valid comparisons which relate to both the age distributions e.g. There are fewer people in all age groups over 45 in 2000 than in 2025; There are more people in the age groups under 30 in 2000 than 2025; The greatest increase in population between 2000 and 2025 is in 60-75 years age group.
		1	For one valid correct comparison.
4c	3 marks	3	43.4 (years) or 43 years 5 months. Accept 43.41 (years).
		2	For $\Sigma fx = 2\ 665.50$ or $\Sigma fx = 2\ 634.80$ or 42.9 (years) or 43 (years) seen or complete correct method with one calculation error.
		1	For at least 5 fx's correct (from 72.375, 231.75, 440.625, 635.25, 749.25, 536.25) or (from 67.55, 226.60, 434.75, 629.20, 743.70, 533.00) or correct calculation using other incorrect but consistent 'midpoints' of group ages
4d	1 mark	1	51 : 79 accept 2 : 3 or 3 : 4 or 5 : 8 or 13 : 20.
4e	2 marks	2	TWO valid points, one about their answer in part c to the mean age of the population AND one about their answer in part d, compared to the ratio of males to females in 2000. e.g. The mean age of the UK population is predicted to increase between 2000 and 2025; proportionately more males and fewer females are predicted to be in the population in 2025 than in 2000.
		1	For one valid point.

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5a	2 marks	2	(£)4 480.22 or (£)4 480.21. Accept (£)4 268.42 (If 4.5% only applied from 2005).
		1	For (£)4 287.29 or (£) 4 084.61 seen for the correct pension for 2005 or complete correct method with one calculation error.
5b	2 marks	2	(£)282.1 million or equivalent
		1	For a correct method which will allow candidates to progress to calculate either both the single and married pension totals in 2003 or both the individual increases in pension in single and married pensions. e.g. $2.5 \times (10^6) \times \frac{3}{4} \times 3\,926.00$ and $2.5 \times (10^6) \times \frac{1}{4} \times 6\,276.40$ or $3\,926 \times 0.025$ and $6\,276.40 \times 0.025$ or complete correct method with one calculation error.
5c	2 marks	2	Claim is valid WITH correct supporting calculation seen.
		1	For 1.78(p) or 1.775(p) seen rounded or un-rounded for the cost to each adult or (£)337.99 million or (£)338million seen rounded or un-rounded for the amount raised from 2 per day

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Part B			
6a	3 marks	3	Correct answer for sleeping section area that rounds to 2.21(m²) AND correct answer for exercise section area that rounds to 2.36(m²) WITH statement that area of sleeping section satisfies regulations but area of exercise section does not.
		2	For correct answers that round to 2.21(m²) or 2.36(m²) seen.
		1	For 1.4478(m) or 1.5494(m) seen.
6b	2 marks	2	(£)230.40 or (£)241.20.
		1	For 127.6(m²) seen for total area or 84 (m²) and 43.6(m²) seen or complete correct method with one calculation error.
6c	2 marks	2	7 (5-litre containers).
		1	For 33.48 (litres) seen for correct volume of concentrated cleaning solution or complete correct method with one calculation error.
6d	2 marks	2	(£)132.38 Accept (£)132.39
		1	For (£)155.55 seen for correct income including VAT or (£)39.06 (for small dogs) or (£)47.36 (for medium dogs) or (£)45.95 or (£)45.96 (for pairs of small dogs) or complete correct method with one calculation error
6e	1 mark	1	5A + 4.6B = 176 AND A + B = 36 OR equivalent in words or using other symbols.
6f	2 marks	2	A works 26 (hours) AND B works 10 (hours).
		1	For A works 26 (hours) or B works 10 (hours).
6g	1 mark	1	Title and axis labels with £ shown on vertical axis for profit.
	1 mark	1	Suitable linear scales.
	2 marks	2	For 6 points correctly plotted.
		1	For 5 points correctly plotted.
6h	1 mark	1	For acceptable line of best fit.
6i	1 mark	1	Accurate reading from 'their' graph e.g. (£)700
6j	1 mark	1	Correct assumption based on continuation of trend or Owner assumes similar profit from the new kennels

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	Part A	31	
	Part B	19	
	Total	50	